
✉ Class 11 Mathematics – Chapter: Statistics

1. Introduction

- Statistics involves collecting, organizing, summarizing, and interpreting data.
 - Helps in making decisions based on data analysis.
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2. Types of Data

- **Primary data:** Collected directly by observation or survey.
 - **Secondary data:** Collected from existing sources.
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3. Presentation of Data

- **Grouping data:** Organizing data into classes or intervals.
- **Frequency distribution:** Table showing data frequencies.
- **Graphical representation:**

- Histogram
- Frequency polygon
- Bar graph
- Pie chart

4. Measures of Central Tendency

- **Mean (Arithmetic Mean):** Average value of data.
$$\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$$
- **Median:** Middle value when data is arranged in order.
- **Mode:** Most frequently occurring value in the data.

5. Measures of Dispersion

- **Range:** Difference between maximum and minimum values.
- **Mean Deviation:** Average of absolute deviations from mean or median.

- **Variance and Standard Deviation:** Measures of spread around the mean.
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6. Grouped Data Formulas

- Mean for grouped data:
$$\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$$
 - Median formula for grouped data involves class intervals.
 - Mode estimated using formula with class intervals.
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7. Cumulative Frequency

- Sum of frequencies up to a certain class.
 - Used in finding median and quartiles.
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8. Applications

- Economics, social sciences, business, and research.
- Used to summarize large data sets and make informed decisions.

9. Exam Tips

- Practice frequency table construction.
- Memorize formulas for mean, median, and mode.
- Understand graphical data presentation.
- Solve problems on grouped data carefully.